

QUICK CALIBRATION

For Models 455, 465, 550, 570, 574. Also the 650 Series and 660 Series

- From the weigh mode key in **100 [SELECT]** to access the Key in Code: display. The access code must be keyed in within 5 seconds or the indicator will return to the weigh mode.
- Key in the default Quick Cal access code **54321 [ID] [ENTER]**.
NOTE: If the default access code is keyed in and **WRONG CODE!** is displayed, the access code has been changed. GSE has no way of knowing the new access code.
- At this point **New Zero?** Should be displayed. The **[SELECT]** key may be used to toggle through the available calibration choices. See the following pages for details on the other methods of calibration.
- Pressing **[CLR]** at the **New Zero?** Prompt exits calibration mode. A calibration weight can be applied before or after entering the calibration weight value. The display prompts you to **Key in Cal Wt or Add Cal WT** at the appropriate time. The digital filter is automatically set to 4 seconds during calibration. A motion delay is enforced during zero and span calibration. New calibration values are not permanently saved until the calibration mode is exited and changes are saved by pressing **[ENTER]** at the **ENTER=SAVE** prompt. If power is lost during calibration, the previously saved calibration values will be in effect when power is restored.

CALIBRATION METHODS

Selecting a Calibration Method

) 05 New Zero?

SELECT

) 05 Last Zero?

SELECT

) 05 Temp Zero?

SELECT

) 05 Only Zero?

SELECT

) 05 Cal Reset

SELECT

) 05 Known LCOut

There are six methods of calibration. Press **[SELECT]** to select a calibration method. Press **[ENTER]** to begin the calibration method selected.

New Zero - Establishes a new zero (no load) and span (test load) calibration reference.

Last Zero - Performs a span re-calibration without removing the test load. *(This selection is not available with linearization enabled.)*

Temp Zero - Performs a calibration without removing the current gross weight. The zero reference determined during the last calibration is maintained. *(This selection is not available with linearization enabled.)*

Only Zero - Establishes a new zero reference without affecting span.

Cal Reset - Adjusts the zero and gain factors of the A/D amplifier to default values for maximum sensitivity.

Known LCOut - Calibrates without the use of test weights. The mV/V value and full scale capacity of each load cell must be known.

New Zero Calibration

) 05

l b Gross

1 0 0

SELECT

SETUP

Key i n Code:

5 4 3 2 1

ID

ENTER YES

SETUP

Qui ck Cal !

) 05

New Zero?

ENTER YES

) 05

Mot' n Delay

) 05

Uni ts =l b

) 00

Key i n Cal Wt

ADD TEST WEIGHT

1 0 0

ENTER YES

10) 00

Mot' n Delay

10) 00

CAL OK ?

ENTER YES

SETUP

Save Mods?

SETUP

ENTER =SAVE

ENTER YES

SETUP

Exi t Setup

SETUP

ENTER =EXI T

ENTER YES

10) 00

l b Gross

NEW ZERO

The most common calibration procedure, **New Zero** establishes a new zero (no load) and span (test load) calibration reference. Use this method for first-time calibration and complete re-calibration.

To perform a New Zero calibration:

- Remove all weight from the scale.
- Access the calibration mode.
- Select the New Zero calibration method.
- Press **[ENTER]** at the New Zero? prompt to establish the new zero reference.
- After establishing the zero reference, the default calibration units are displayed momentarily followed by the Key i n Cal Wt prompt.
- Apply the calibration weight, key in the calibration weight value in terms of the default calibration units and press **[ENTER]** to establish span.



If the calibration weight value was entered before the weight was applied, the display will prompt Add Cal WT. Add the calibration weight and press **[ENTER]**.

- After establishing span, CAL OK? is displayed suggesting that the calibration is acceptable, or ReCal ??? is displayed suggesting that the calibration procedure should be repeated.

Accept the calibration by pressing **[ENTER]** at the CAL OK? prompt or **[CLR]** at the ReCal ??? prompt.

- or -

Repeat the calibration by pressing **[CLR]** at the CAL OK? prompt or **[ENTER]** at the ReCal ??? prompt.

- Once the calibration is accepted, press **[ENTER]** at the ENTER=SAVE prompt and again at the ENTER=EXI T prompt to save the new calibration and exit the calibration mode.

- or -

To exit the calibration mode without saving the new calibration, press **[CLR]** at the ENTER=SAVE prompt. Then press **[ENTER]** at the ENTER=UNDO prompt and again at the ENTER=EXI T prompt to exit the calibration mode.

Last Zero Calibration

2) l b Gross

ZERO

0) l b Gross

ADD 10,000 LB TEST WEIGHT

1004) l b Gross

1 0 0 SELECT

SETUP Key i n Code:

5 4 3 2 1 ID ENTER YES

SETUP Qui ck Cal !

1004) New Zero?

SELECT

1004) Last Zero?

ENTER YES

1004) Uni ts = l b

1004) Key i n Cal Wt

1 0 0 0 0 ENTER YES

1000) CAL OK ?

ENTER YES

SETUP Save Mods?

SETUP ENTER =SAVE

ENTER YES

SETUP Exi t Setup

SETUP ENTER =EXI T

ENTER YES

1000) l b Gross

LAST ZERO

Last Zero allows span re-calibration without removing the applied test weight. The last zero established by pressing **[ZERO]** from the weigh mode will be used as the zero reference. This procedure is especially useful when performing routine tolerance checks on large capacity scales. A scale found to be out-of-tolerance can be easily calibrated without having to remove the test weights to reestablish a zero reference.

To perform a Last Zero calibration:

- Remove all weight from the scale.
- Press **[ZERO]** to zero the scale in the weigh mode.
- Apply the calibration test weight.
- Access the calibration.
- Select the Last Zero calibration method.
- Press **[ENTER]** at the Last Zero? prompt to display the Key i n Cal WT prompt.
- Key in the calibration weight value in terms of the default calibration units and press **[ENTER]** to establish span.
- After establishing span, CAL OK? is displayed suggesting that the calibration is acceptable, or ReCal ??? is displayed suggesting that the calibration procedure should be repeated.

Accept the calibration by pressing **[ENTER]** at the CAL OK? prompt or **[CLR]** at the ReCal ??? prompt.

- or -

Repeat the calibration by pressing **[CLR]** at the CAL OK? prompt or **[ENTER]** at the ReCal ??? prompt.

- Once the calibration is accepted, press **[ENTER]** at the ENTER=SAVE prompt and again at the ENTER=EXI T prompt to save the new calibration and exit the calibration mode.

- or -

To exit the calibration mode without saving the new calibration, press **[CLR]** at the ENTER=SAVE prompt. Then press **[ENTER]** at the ENTER=UNDO prompt and again at the ENTER=EXI T prompt to exit the calibration mode.

Temporary Zero Calibration

2105) I b Gross

1 0 0 SELECT

SETUP Key i n Code:

5 4 3 2 1 ID ENTER YES

SETUP Qui ck Cal !

2105) New Zero?

SELECT SELECT

2105) Temp Zero?

ENTER YES

2105) Mot' n Del ay

2105) Uni ts =I b

0) Key i n Cal Wt

ADD TEST WEIGHT

2 0 0 0 ENTER YES

201) Mot' n Del ay

200) CAL OK ?

ENTER YES

SETUP Save Mods?

SETUP ENTER =SAVE

ENTER YES

TEMPORARY ZERO

Temp Zero is used to calibrate without establishing a new zero. Calibration can be performed without removing the currently applied gross load. A temporary zero is established so that test weights can be added during calibration. The original zero reference determined during the previous calibration is not affected. This procedure is commonly used to calibrate hopper scales where it is impractical to empty the product before calibrating.

To perform a Temp Zero calibration:

- Access the calibration mode.
- Select the Temp Zero calibration method as.
- Press **[ENTER]** at the Temp Zero? prompt to establish a temporary zero reference.
- After establishing the temporary zero reference, the default calibration units are displayed momentarily followed by the Key i n Cal WT prompt.
- Apply the calibration weight, key in the calibration weight value in terms of the default calibration units and press **[ENTER]** to establish span.



If the calibration weight value was entered before the weight was applied, the display will prompt Add Cal WT. Add the calibration weight and press **[ENTER]**.

- After establishing span, CAL OK? is displayed suggesting that the calibration is acceptable, or ReCal ??? is displayed suggesting that the calibration procedure should be repeated.

Accept the calibration by pressing **[ENTER]** at the CAL OK? prompt or **[CLR]** at the ReCal ??? prompt.

- or -

Repeat the calibration by pressing **[CLR]** at the CAL OK? prompt or **[ENTER]** at the ReCal ??? prompt.

- Once the calibration is accepted, press **[ENTER]** at the ENTER=SAVE prompt and again at the ENTER=EXIT prompt to save the new calibration and exit the calibration mode.

- or -

To exit the calibration mode without saving the new calibration, press **[CLR]** at the ENTER=SAVE prompt. Then press **[ENTER]** at the ENTER=UNDO prompt and again at the ENTER=EXIT prompt to exit the calibration mode.

Only Zero Calibration

9% I b
Gross

1 0 0 SELECT

SETUP Key in
Code:

5 4 3 2 1 ID ENTER
YES

SETUP Qui ck
Cal !

9% Onl y
Zero?

ENTER
YES

9% Mot ' n
Del ay

0) CAL
OK ?

ENTER
YES

SETUP Save
Mods?

SETUP ENTER
=SAVE

ENTER
YES

SETUP Exi t
Set up

SETUP ENTER
=EXI T

ENTER
YES

0) I b
Gross

ONLY ZERO

Only Zero is used for zero calibration only. This calibration procedure is primarily used for the zero reference after changing a scale's dead-load, such as adding safety rails to a scale deck or installing a mixer motor on a hopper scale. Because the full scale capacity is referenced from the last zero calibration, performing a zero calibration helps to ensure that the full scale over-load will not occur prematurely due to the additional dead-load.

To perform an Only Zero calibration:

- Remove all weight from the scale.
- Access the calibration.
- Select the Only Zero calibration method.
- Press **[ENTER]** at the *Onl y Zero?* prompt to establish the new zero reference.
- After establishing zero, *CAL OK?* is displayed suggesting that the calibration is acceptable.

Accept the calibration by pressing **[ENTER]** at the *CAL OK?* prompt.

- or -

Repeat the calibration by pressing **[CLR]** at the *CAL OK?* prompt.

- Once the calibration is accepted, press **[ENTER]** at the *ENTER=SAVE* prompt and again at the *ENTER=EXI T* prompt to save the new calibration and exit the calibration mode.

- or -

To exit the calibration mode *without* saving the new calibration, press **[CLR]** at the *ENTER=SAVE* prompt. Then press **[ENTER]** at the *ENTER=UNDO* prompt and again at the *ENTER=EXI T* prompt to exit the calibration mode.



If an over-load condition exists at the time of calibration, the calibration method prompts are replaced by an Over load! message. Press [CLR] to proceed directly to the Cal Reset procedure.



Because calibration factors are calculated based upon each load cell's signal output, this procedure will not be accurate when using a trimming junction box to sum the load cell signals.

CALIBRATION RESET

Cal Reset sets the gain factors of the A/D amplifier to minimum values and clears the A/D's zero offset. These gain values are stored in the Information Parameters at P61104 → P61107. A Cal Reset should be performed if calibration is not possible due to an over-load condition, or if the displayed weight value does not change when the test weight is applied.

To perform a Calibration Reset:

- Access the calibration.
1. Select the Cal Reset calibration method.
 2. Press [ENTER] at the Cal Reset prompt reset the A/D amplifier.
 3. The display prompts New Zero?. Proceed with calibration.

KNOWN LOADCELL OUTPUT

Known LCOut is used to calibrate without test weights. The exact full scale mV/V rating must be known for each load cell. All load cells must be of the same full scale capacity. This procedure works best for hopper scales where weight is evenly distributed and signal trimming is not required. This method only exists on the 460 and 660 Series indicators. This method does not work with a summing box connected.

To perform a Known Loadcell Output calibration:

- Access the calibration mode.
- Select the Known LCOut calibration method.
- Press [ENTER] at the Known LCOut prompt to display # of LC.

The number of load cells specified during the last calibration will also be displayed. A value of zero (0) indicates that this calibration method has not yet been performed.

- Key in the number of load cells (16 maximum) and press [ENTER].

- or -

Press [ENTER] to accept the displayed value.

- The display prompts LC#x mV/V (where 'x' is the load cell number) and then shows the mV/V value (0.1 → 5.0) last entered for this load cell.
- Key in the load cell's mV/V value and press [ENTER].

Known Loadcell Calibration

2% Known LCOut

[ENTER]
YES

2% # of LC 0

1 [ENTER]
YES

2% LC# 1 FSmVv

2% 2.0 00000

3 . 0 0 1 2 [ENTER]
YES

2% UNITS = lb

Known Loadcell Calibration

2%		LC FS
100.0		
2	5	0 0 ENTER YES
2%		Updt g Gai ns
		Cur Wt Zero?
ENTER YES		
		CAL OK ?
ENTER YES		
SETUP		Save Mods?
SETUP		ENTER =SAVE
ENTER YES		
SETUP		Exit Setup
SETUP		ENTER =EXIT
ENTER YES		
		lb Gross

- or -

Press **[ENTER]** to accept the displayed value.

- Repeat the above steps for as many load cells as specified.
- The display prompts LC FS showing the value last entered for the load cell full scale.
- Key in the full scale capacity for the load cell(s) and press **[ENTER]**.

- or -

Press **[ENTER]** to accept the displayed value.

- The display briefly shows Updt g Gai ns as it updates the gain values, then prompts Cur Wt Zero?.
- Press **[ENTER]** to establish the current input signal as the zero reference.

- or -

Press **[SELECT]** to display Zero=0mV/V?. Press **[ENTER]** to use a 0mV/V output as the zero reference.

- or -

Press **[SELECT]** to display Key in Cur Wt . Key in the known gross weight already applied to the scale and press **[ENTER]**.

- or -

Press **[CLR]** to bypass the zeroing option.

- The display shows CAL OK? suggesting that the calibration is acceptable.

Accept the calibration by pressing **[ENTER]** at the CAL OK? prompt.

- or -

Repeat the calibration by pressing **[CLR]** at the CAL OK? prompt.

- Once the calibration is accepted, press **[ENTER]** at the ENTER=SAVE prompt and again at the ENTER=EXIT prompt to save the new calibration and exit the calibration mode.

- or -

To exit the calibration mode without saving the new calibration, press **[CLR]** at the ENTER=SAVE prompt. Then press **[ENTER]** at the ENTER=UNDO prompt and again at the ENTER=EXIT prompt to exit the calibration mode.